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RHYNOCORIS PERSICUS (HETEROPTERA, REDUVIIDAE): THREE SPECIES OR ONE?

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***Rhynocoris persicus* (Heteroptera, Reduviidae): Three Species or One? Putshkov P. V.** — The study of type-specimens and other material demonstrates that *Rhynocoris persicus* (Jakovlev, 1877) = *Rh. christophi* (Jakovlev, 1877), syn. n. = *Rh. analis* (Jakovlev, 1889), syn. n. The two latter, as well as *Rh. christophi* f. *pictipes* (Horvath, 1911), are only melanistic forms of the former. The type of colour variability in *Rh. persicus* is similar to those in *Rh. iracundus* (Poda, 1761) and *Rh. monticola* (Oshanin, 1870). Key taxonomic characters and geographic range of *Rhynocoris persicus* (Jakovlev, 1877) as well as those of its infraspecific forms are reconsidered. The species inhabits not only the vast regions of the Fore Asia, but is present in Kazakhstan too. Besides other characters, its main differences from *Rh. iracundus* and other *Rhynocoris* species are the details of the aedeagal theca structure for male and the spindle-like incrassation of the hind tibia for female. The latter character as well as the wax-like substance covering this tibia may be associated with some unknown feature of the reproductive biology probably related to egg-deposition process.

Key words: Heteroptera, Reduviidae, *Rhynocoris*, variability, diagnostic, new synonyms, distribution, Palearctics.

***Rhynocoris persicus* (Heteroptera, Reduviidae): три вида или один? Пучков П. В.** — Изучение типов и других экземпляров показало, что *Rhynocoris persicus* (Jakovlev, 1877) = *Rh. christophi* (Jakovlev, 1877), syn. n. = *Rh. analis* (Jakovlev, 1889), syn. n. Два последних — лишь меланистические формы первого, как и *Rh. christophi* f. *pictipes* (Horvath, 1911). Вариабельность *Rh. persicus* по окраске подобна таковой *Rh. iracundus* (Poda, 1761) и *Rh. monticola* (Oshanin, 1870). Пересмотрены ключевые таксономические признаки *Rhynocoris persicus* (Jakovlev, 1877) в его новом пониманиии, равно как и данные о распространении вида и его форм. Вид не только населяет обширные регионы Передней Азии, но и присутствует в Казахстане. Помимо других признаков, его основные отличия от наиболее сходного *Rh. iracundus* и других видов *Rhynocoris* — детали строения теки пениса у самца и веретеновидное утолщение задних голеней у самки. Последний признак, как и воскоподобное покрытие этих голеней, вероятно, связаны с неиз-вестной особенностью репродуктивного поведения (при откладке яиц?).

Ключевые слова: Heteroptera, Reduviidae, *Rhynocoris*, изменчивость, диагностика, новые синонимы, распространение, Палеарктика.

Introduction

The genus *Rhynocoris* counts about 150 species in the world fauna. They often manifest a significant degree of variability rather comlicating the identification. One of such cases is demonstrated here.

Rhynocoris persicus (Jakovlev, 1877) and *Rh. christophi* (Jakovlev, 1877) have been described from Shahrud (North Iran) while *Rh. analis* (Jakovlev, 1889) — from Ordubad (now in Nakhitchevan' enclave of Azerbaijan). The recent study of types and other materials from the below mentioned museums has demonstrated that all three are the colour forms of the same species. The correct name of the latter according to the priority principle is *Rh. persicus*. The substantiation of this idea as well as the other morphological, taxonomic and geographic information is given below.

For the titles of zoological institutions I use the same abbreviations as in the recent "Catalogue of the Heteroptera of the Palaearctic Region" (Putshkov, Putshkov, 1996): HNHM — Hungarian Natural History Museum, Budapest, Hungary; MNHN — Museum Nationale d'Histoire Naturelle, Paris, France; UASK — Schmalhausen Institute of Zoology, Kyiv; NMPC — National Museum of Natural History, Prague, Czechia; ZMAS — Zoological Institute, St.-Petersburg, Russia; ZSMC — Zoologische Staatssammlung, Munchen, Germany.

Rhynocoris persicus (Jakovlev, 1877)

Harpactor persicus: Jakovlev, 1877: 30; *Harpactor christophi*: Jakovlev, 1877: 31, syn. n.; *Harpactor analis*: Jakovlev, 1889: 340, syn. n.; *Rhinocoris persicus* var. *pictipes* Horvath, 1911: 591, syn. n.

Material. For *Rh. persicus* f. *persica* (the "red" typical form). Lectotype *Harpactor persicus* ♂, North Iran, Shahrud ["Шахрудъ"], (ZMAS). Paralectotypes: 2 ♂, same locality, (ZMAS). Non-type material: Iran: 5 ♂, Shahrud, 12 (2 ♂), 13, 22 and 24.05. (ZMAS); ♂, Danalu near Urmia lake, 26.05. (ZMAS); ♀, Tadjrish [Таджриш] on the southern slopes of Elburs mountains, 12–25.06.1927 (Sijasov) (ZMAS); ♂, Bakhtyaris mountains, 1904 (J. de Morgon) (MNHN). Turkey (all ZSMC, coll. G. Seidenstuecker): ♂, Gaziantep, 30.04–4.05.1960; ♂, same loc., 11–17.05.1963; ♂, ♀, Gaziantep, Duelluek, 12–18.05.1968; ♀, Malatia, 31.05.–13.06.1964. Armenia: 3♂, Megri on the river Arax, 30.04, 2.05 and 10.06.1938 (ZMAS); ♂, Mendjivan' [Мендживань] on the river Arax, 4–5.06.1933 (Lukjanovitsh) (ZMAS); ♂, Erevan, 21.05 (ZMAS); ♂, Parakar near Erevan, 30.05.1927 (UASK); ♂, "Khosrov" reservation, 6.06.1980 (P. Putshkov) (UASK). Azerbaijan: ♂, Djebrail region, dry steppe, 06. 1977 (P. Putshkov) (UASK); ♂, Ordubad, Nakhitschevan' region (ZMAS). *Patria ignota*: ♂, (Zarudny) (ZMAS). Altogether: 22 ♂, 3 ♀.

For *Rh. persicus* f. *christophi* (the "black" form). Lectotype *Harpactor christophi* ♀, North Iran, Shahrud ["Шахрудъ"], (ZMAS). Paralectotypes: 5 ♀, same loc., (ZMAS). Additional material: North Iran: 7 ♀ Shahrud, 12.05 (2 ♀), 13.05, 14.05, 17.05 and 22.05.1914 (2 ♀), (A. Kiritchenko) (ZMAS); ♀, island Kojun [Коюн] on the Urmia lake, 4.05.1916 (Mus. Caucas. 10–16 Exp. Urmiana) (ZMAS); ♂, same loc., 7.05.1916 (Mus. Caucas. 100–16 Exp. Urmiana) (ZMAS). Turkey: ♀, Malatia, 31.05.–13.06.1964 (G. Seidenstuecker) (ZSMC). Armenia (all ZMAS): ♀, Megri on the river Arax, 2.05; ♀, same loc., 7.06; ♀, river Megri-chaij, 21.04; ♀, Mendjivan' [Мендживань] on the river Arax, 4–5.06; 4 ♀, Erevan vicinity, 21.05, 13.08, 18.08 and without date; ♀, Erevan province (no date); ♀, Davalu near Arax, 8.07.1931; ♀, Shorbulag [Шорбулаг] in Kam region, 26.04. Azerbaijan: ♀, Asni, Nakhitschevan' region (ZMAS); ♀, Ordubad, Nakhitschevan' region (HNHM). *Patria ignota*: 2 ♀, 14 and 16.05.1904 (Zarudny) (ZMAS). Altogether: ♂, 29 ♀.

For *Rh. persicus* f. *pictipes* (the "black with red femoral rings" form): Turkey (both ZSMC, coll. G. Seidenstuecker): 2 ♀, Gaziantep, Duelluek, 12–18.05.1968; ♀, Malatia, 31.05.–13.06.1964 (transitional to f. *christophi*). Altogether: 3 ♀.

For *Rh. persicus* f. *analis* (the "black, red-pygophored" form). Lectotype *Harpactor analis* ♂, Azerbaijan, Ordubad in Nakhitschevan' region ["Ордуб". Нахичевань, Ордубад] (ZMAS). Additional material: Armenia: ♂, Aza in Arax valley, 24.05.1933 (ZMAS). Altogether: 2 ♂.

For the lectotypes designation and detailed data on the type material labels see Putshkov (1995).

Coloration. "Red" typical form *"persica"*: corium red or orange. Posterior pronotal lobe red or orange entirely or partially; in latter case lateral borders in fore one or two thirds of their length are black; sometimes there is also central black spot or black transverse band connecting lateral angles. Femorae and tibiae red or orange with black bases and apexes; there no black separate rings, semi-rings or lateral spots in distal one or two thirds of their length, that often (though not always!) present in *Rhynocoris iracundus*. In many cases the dorsal surface of fore and mid femur partially or totally black. Tibiae red or orange with black bases and apexes; sometimes apexes of tibias brown or brownish. Tarsi reddish, brownish or brown. Pygophore entirely or for the most part red or orange. Scutellum completely black or with narrow yellowish, reddish or whitish apical rim. Connexival spots yellow; sometimes the caudal ones are reddish. Head (but for the red or reddish interocellar transversal speck), thorax (but for hind pronotal lobe), abdomen (but for pygophore and connexival spots), proboscis, antennae, coxa and trochanters black.

"Black" form *"christophi"*: completely black but for reddish, yellowish or brownish interocellar transversal speck and brown or brownish tarsi; sometimes antennae partially fawn-coloured; whitish, yellowish or reddish connexival spots occasionally large, more usually small or absent.

"Black red-ring-femured" form *"pictipes"*: like in *"christophi"* but red or reddish subapical rings present on all or only on hind femurs; whitish, yellowish or reddish connexival spots well-developed.

"Black red-pygophored" form *"analis"*: like in *"christophi"* but pygophore is entirely or mostly red or orange (only males are still known).

Pubescence silvery (partially brownish in some specimens), tender, quite dense, upright on head and thorax and inclined on abdomen, corium and, at times, on posterior pronotal lobe. Hairs of thorax and those of postocular part of head around as long as eye-width (seen in dorsal proection) or as dorso-ventral thickness of 1st antennal joint. Pubescence of antennae, fore part of head, abdomen and corium is shorter than

that of thorax and of hind part of head. The pubescence of femurs and tibias is upright and denser than in *Rh. iracundus*. Longest hairs of hind tibia 1.2—1.5 (♂) or 0.33—0.65 (♀) times longer than maximal width of hind tibia. Hairs on legs, especially on hind tibia, thicker and coarser than hairs on body; this tray is more pronounced in female.

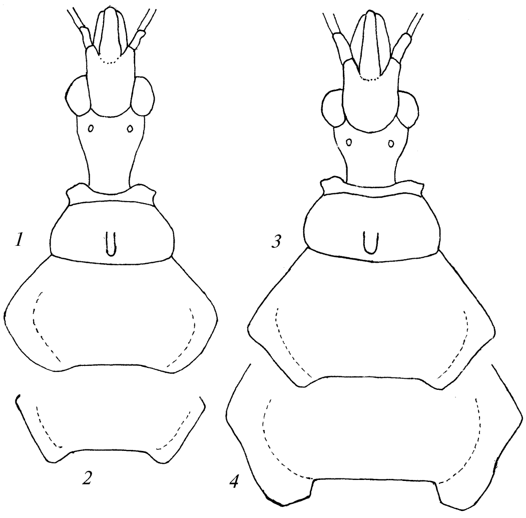


Fig. 1. Configuration of head and pronotum (*1, 3*); that of posterior part of hind lobe of pronotum (*2, 4*): *1, 2* — *Rhynocoris persicus*; *3, 4* — *Rh. iracundus*. Pubescence does not shawn.

Рис. 1. Очертания головы и переднеспинки (*1, 3*); очертания задней части задней доли переднеспинки (*2, 4*): *1, 2* — *Rhynocoris persicus*; *3, 4* — *Rh. iracundus*. Опушение не показано.

Size and habitus. Length with hemielytra 11.0—14.3 (♂) and 13.6—15.1 (♀) mm; without them correspondingly 10.3—13.1 and 12.0—14.0 mm. Habitus resembles that of *Rh. iracundus* though seems to be more slender. However, this visual impression is hardly confirmed by measurements: in ♂ of *Rh. persicus* length with hemielytrae is 3.0—3.8 times larger than maximal width of abdomen and 3.7—4.4 times larger than maximal width of pronotum; in ♀ correspondingly 2.6—3.3 and 3.6—4.1 times. (For *Rh. iracundus* these proportions are 3.0—3.5 and 3.3—4.0 times in ♂ and 2.4—3.3 and 3.4—4.0 times in ♀).

Head 0.95—1.13 times as long as pronotum. It is 1.8—2.2 times longer than wide (not 3 times longer as V. E. Jakovlev (1889: 31) indicated for *analis*). It seems to be more slender and with longer "neck" than head of *Rh. iracundus* (fig. 1, *1*). However, these characters overlap (head of *Rh. iracundus* is 1.75—2.0 times longer than wide though being thicker in its postocular part (fig. 1, *3*)). Antenna length is 7.0—9.6 mm; in ♂ it is relatively longer than in ♀. First antennal joint 0.96—1.11 longer than head. Relative length of antennal joints I : II : III : IV in f. *"persica"* is 21—32 : 11—14 : 16—21 : 23—36 (on 7 ♂ and ♀); in f. *"analis"* it is 33 : 14 : 20 : ? (on ♂); in f. *"pictipes"* it is 31 : 16 : 16 : ? (on ♀); in f. *"christophi"* it is 29—31 : 12—16 : 13—15 : 27—30 (on 5 ♀). In other words 2nd joint in f. *"persica"* and f. *"analis"* is 1.35—1.6 times shorter than the 3rd one, while in f. *"pictipes"* and *"christophi"* both joints are of subequal length.

Thorax. Pronotum configuration (fig. 1, *1*) usual for *Rhynocoris* spp. Pair of small tubercles on hind part of anterior pronotal lobe (laterad to the end of longitudinal furrow and in front of transversal one) is faintly visible or fairly well-defined. Posterior pronotal lobe configuration variable: hind angles excrescences feebly (fig. 1, *1*) or moderately (fig. 1, *2*) developed with less or more bevel inner margin of these excrescences; postero-lateral margin convex or straight (fig. 1, *1, 2*).

Fore femur 5.5—6.7 (♀) or 6.0—7.2 (♂) times longer than its maximal dorsoventral thickness. Hind tibia in both sexes 0.9—1.03 times as long as head with pronotum taken together (in *Rh. iracundus* 1.0—1.17 times as long). In ♀ hind tibia moderately spindle-like incrassated in proximal two thirds of its length (fig. 2, *11*). Its maximal thickness (near the proximal one-forth border) is 1.8—2.0 times greater than smallest thickness of knee bend and 2.2—3.0 times greater than smallest subapical thickness ("ankle") (fig. 2, *11*). In ♂ hind tibia almost non-incrassated (fig. 2, *12*). Its maximal thickness is 1.15—1.3 times greater than smallest thickness of knee bend and 1.4—1.7 times greater than smallest subapical thickness. Hind tibia of female covered

by the layer of dull, lustreless, wax-like substance. Other parts of legs and body often covered with non-wax-like gluing secretion retaining some specks of dust and grains.

Genitalia. In ♀ genital plates resemble those of *Rh. iracundus* (Putshkov, 1987) though inner plates somewhat narrower (it is difficult to estimate this character due to the presence of secretion and glued sand grains).

In ♂ parameres slender with rounded tips (fig. 2, *1*). Apophyse of pygophore with dull or sharpened (fig. 2, *1*) lateral angles; its width at the level of these angles is 3.3—5.0 times smaller than maximal width of pygophore (fig. 2, *1*). Theca of penis wide. Fore part of theca apical "plate" almost non-sclerotized in the middle; hence, anterior border of sclerotized part of newly extracted penis examined in water has well-defined, deep, broad-based, more or less subconical incision (fig. 2, *2, 3, 6*). Being conserved out of fluid, penis desiccates and this incision becomes badly visible or invisible at all. Basal "frame" of theca at the level of its angles is wider than apical "plate" if the said angles are not too deformed due to the desiccation. These angles are strongly pronounced (fig. 2, *2, 3, 6*). Being viewed from above they often appears to be considerably sharpened (fig. 2, *2, 6*); however, they always turn out to be rounded if one examine them from side (fig. 2, *4*) or in the intermediate side/below position (fig. 2, *7—9*). Basal struts slender, twice wavy curved thus forming lyriform figure; there are no medial excrescence in the preapical incurvation region; strut tips are situated near the border of basal 0.5—0.6 of theca length (fig. 2, *2, 3, 6*).

Geographic range seems to be mostly Irano-Turanian. Below, the character "$^{\Diamond}$"is used for f. *"persica"*, "*" — for f. *"christophi"*, "$^{\square}$" — for f. *"pictipes"*, "$^{+}$" — for f. *"analis"*. These characters are put before the geographic name to show that the mentioned forms were registered in the country or in the locality. Sign "[!]" after the name means the first indication for a country or for a locality.

In Transcaucasia *Rh. persicus* seems to be restricted to southern zones of xerophytic and meso-xerophytic vegetation of the low and moderately high altitudes in the middle Arax basin both in Armenia$^{\Diamond*+}$ (Megri$^{\Diamond}$*, Mendjivan' $^{\Diamond}$*, Erevan$^{\Diamond}$*, Parakar$^{\Diamond}$ [!] near Erevan, "Khosrov"$^{\Diamond}$ reservation [!], Aza^{+}, Davalu$^{\Diamond}$*, Shorbulag* in Kam region) and Azerbaijan$^{\Diamond*+}$ (Djebrail$^{\Diamond}$ region [!]; Nakhitschevan' $^{\Diamond*+}$ enclave: Ordubad$^{\Diamond*+}$, Asni* [!]) (Jakovlev, 1877, 1889; Kiritshenko, 1918, 1938; Akramovskaya, 1959; our data). In Iran$^{\Diamond}$* it is found in North-West$^{\Diamond}$* (Danalu$^{\Diamond}$ near Urmia lake, island Kojun* on the Urmia lake, Tadjrish$^{\Diamond}$), North-Central$^{\Diamond}$* (Tegeran$^{\Diamond}$*, Shahrud$^{\Diamond}$* in Khorassan, Gorgan$^{\Diamond}$) as well as in South-West-Central$^{\Diamond}$ [!] (Bakhtyaris$^{\Diamond}$ mountains [!] between Isfaghan an Khuzestan) parts (Jakovlev, 1877; Kiritshenko, 1918, 1938; Lindberg, 1939; Hoberlandt, 1954, 1959; studied material). In Turkey$^{\Diamond*\square}$ it is registered (Seidenstuecker, 1960; Onder, 1980) only near Syrian border (Gaziantep$^{\Diamond}$*, Duelluek$^{\Diamond*\square}$ near Gaziantep, Malatia$^{\Diamond*\square}$). In Syria* the species is found in northern (Akbez* near Turkish border) (Puton, 1892) as well as in southern (Dummar* near Damask) (Horvath, 1911) parts. The southernmost indication is Israel* (above Wadi Seyal) (Linnavuori, 1961). The northernmost and the easternmost capture is that in South-East Kazakhstan* [!] (Alma-Atinsky reservation* [!]) by I. G. Pljustsh (see "Material"). This last founding means that *Rh. persicus* is probably present in Middle Asiatic countries between Iran and Kazakhstan, too.

It is interesting that the most melanistic f. *"christophi"* has wider distribution than other forms both to the south-west (Israel) and to the north-east (?Middle Asia; SE Kazakhstan) of the species range because in *Rh. iracundus*, *Rh. monticola* and *Rh. cuspidatus* the "red" forms have wider ranges than the "black" ones.

Biology. Essentially unknown. Adults were collected from April to August. Specimens captured in May are the most numerous (see above "Material" and Kiritshenko, 1918, 1938; Lindberg, 1939; Hoberlandt, 1954, 1959; Akramovskaya, 1959; Seidenstuecker, 1960). The above-mentioned spindle-like incrassation of the female hind tibia as well as the wax-like substance covering it are evidences for the existence

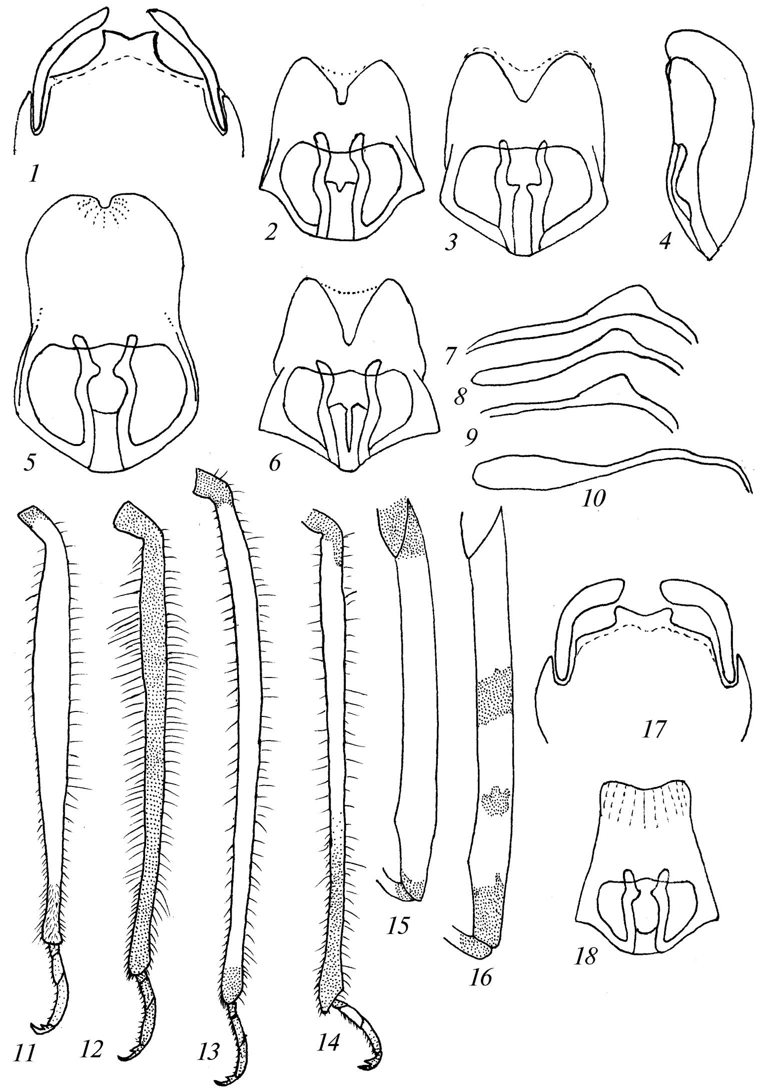


Fig. 2. Configuration of hind part of pygophore with parameres from above (*1, 17, pubescence not shawn*), theca of aedeagus from above (*2, 3, 5, 6, 18*) and from side (*4*), lateral margin of theca in below/side proection (*7–10*), hind (non deformed by dessication) tibiae from side (*11–14*) and hind femora from side (*15, 16*): *1, 2, 7, 11, 15 — Rhynocoris persicus* f. *"persica"*; *3, 4, 8 — Rh. persicus* f. *"analis"*; *6, 9, 12 — Rh. persicus* f. *"christophi"*; 5, *10, 16 — Rh. iracundus*; *17, 18 — Rh. erythropus.*

Рис. 2. Очертания задней части пигофора с парамерами, вид сверху (*1, 17,* опушение не показано), тека эдеагуса (не деформирована от высыхания) сверху (*2, 3, 5, 6, 18*) и сбоку (*4*), боковой край теки в нижнебоковой проэкции (*7–10*), задние голени сбоку (*11–14*) и задние бедра сбоку (*15, 16*): *1, 2, 7, 11, 15 — Rhynocoris persicus* f. *"persica"*; *3, 4, 8 — Rh. persicus* f. *"analis"*; *6, 9, 12 — Rh. persicus* f. *"christophi"*; 5, *10, 16 — Rh. iracundus*; *17, 18 — Rh. erythropus.*

of some specific feature of the reproductive biology probably related to egg-deposition process.

Discussion of the species limits

Rhynocoris persicus, *Rh. christophi* and *Rh. analis* were invariably considered as distinct species (Jakovlev, 1889; Kiritshenko, 1918, 1938; Lindberg, 1939; Hoberlandt, 1954, 1959; Akramovskaya, 1959; Seidenstuecker, 1960; Dispons, Stichel, 1959; Putshkov, 1995; Putshkov, Putshkov, 1996) due to their clear-cut particularities of the

coloration. It was also implied or even stated (Jakovlev, 1877; Dispons, Stichel, 1959) that the spindle-like hind tibia incrassation is the specific and non-unisexual particularity of *Rh. christophi*. Moreower, on these grounds *Rh. christophi* has been ranged in the subgenus *Charontus* Stål whereas *Rh. persicus* was retained in *Rhynocoris* (as *Harpactor*) s. str. (Horvath, 1911: 591; Kiritshenko, 1918: 120).

As is evident from the foregoing, such incrassation is an inherent female characteristic of both *Rh. persicus* and *Rh. christophi* (fig. 2, *11*), whereas their males possess non-incrassated hind tibia (fig. 2, *12*). Males of all three forms have basically the same structure of parameres, pygophore and theca of penis (fig. 2, *1–4, 6–9*); insignificant differences (fig. 2, *2–4, 6–9*) are well within the limits found during our studies of infraspecific variation of male genitals in other *Rhynocoris* species (*Rh. annulatus* (Linnaeus), *Rh. iracundus, Rh. rubricus* (Germar), *Rh. monticola* (Oshanin)). There are no differences of external morphology apart from the mentioned relative lengths of the 2nd and 3rd antennal joints (1 : 1.35–1.6 times in f. *"persica"* and f. *"analis"* and 1 : 0.84–1.04 in f. *"christophi"* and f. *"pictipes"*). The difference is obvious. However, it has not much value by itself, the more so as in *Rh. iracundus* the 2nd antennal joint may be longer, equal or shorter than the 3rd joint even among the specimens of the same population (Putshkov, 1987). As for the difference in coloration, more than one *Rhynocoris* species (e. g. *Rh. iracundus*, *Rh. monticola, Rh. cuspidatus* (Ribaut)) are represented both by "red" and by "black" forms.

The foregoing argues for the consideration of *Rh. christophi* (Jakovlev, 1877), *Rh. analis* (Jakovlev, 1889) and *Rh. christophi* f. *pictipes* Horvath, 1911 as colour forms of *Rh. persicus* (Jakovlev, 1877). They do not deserve even subspecific rank, because f. *"persica"* is sympatric with f. *"christophi"* and f. *"analis"* in Transcaucasia, with f. *"christophi"* in Iran, with f. *"christophi"* and *"pictipes"* in Turkey.

Comparison with other Palearctic species

Forty species of *Rhynocoris* are indicated for Palearctic Region in the broadest sense; however, 10 of them are in reality Paleotropical species inhabiting in Palearctic only Yemen, Afghanistan, Japan, southern and central China (Putshkov, Putshkov, 1996). With the exclusion of these species and the synonymisation of *Rh. christophi* and *Rh. analis* with *Rh. persicus*, only 28 formal Palearctic species of the genus remain.

Eleven of them (*Rh. abeillei* (Puton, 1881), *Rh. abramovi* (Oshanin, 1871), *Rh. kervillei* Horvath, 1911, *Rh. kiritshenkoi* Popov, 1964, *Rh. lineaticornis* (Reuter, 1895), *Rh. mirachur* Kiritshenko, 1914, *Rh. niger* (Herrich-Schaeffer, 1842), *Rh. nigronitens* (Reuter, 1881), *Rh. pumilus* (Jakovlev, 1877), *Rh. sordidulus* (Oshanin, 1871) and *Rh. transitus* Hoberlandt, 1952) readily differ from *Rh. persicus* by smaller size (7–10 mm), to say nothing about other differences. The larger (11–15 mm) Euro-Siberian *Rh. annulatus* (Linnaeus, 1758), Siberian *Rh. dauricus* Kiritshenko, 1926 and *Rh. leucospilus* (Stål, 1859) and Caucasian *Rh. rubrogularis* (Horvath, 1880) have black corium and pronotum. They differ from *Rh. persicus* by stouter built, wider pronotum and another type of theca and apophyse configuration (Putshkov, 1987). Gular region of the head and/or one or two rings on all or on some of femurs are clearly red, orange, reddish, yellow or whitish. The black *Rh. flavolimbatus* (Jakovlev, 1889) (14.5–16.5 mm) is largely sympatric with *Rh. persicus.* It could be readily distinguished by uninterruptedly yellow border of connexivum (in *Rh. persicus* light coloured connexival spots, if present, are separated one from another by the black ones) as well as by wider abdomen and pronotom. The coloration of East-Mediterranean *Rh. bipustulatus* (Fieber, 1861) (= *Rh. nigripennis* Lindberg, 1930 = *Rh. israelensis* Hoberlandt, 1951) (11–14 mm) is highly variable; however, the details of coloration are always different from those of any form of *Rh. persicus* (see Linnavuori, 1961). It differs from *Rh. per-*

sicus also by well-developed sculpture of the posterior pronotal lobe as well as by the hook-like lateral excrescences of the apophyses (Hoberlandt, 1951; pers. obs. on type of *Rh. israelensis* and 2 other specimens).

The East-Mediterranean *Rh. ibericus* Kolenati, 1857 is completely black (but for the eyes and for the small yellowish interocellar speck). It is highly similar in shape and coloration to *Rh. persicus* f. *christophi* readily differing by much larger size (16.8—19.5 (♂) and 19.0—22.0 (♀) mm)), longer legs, narrower apophyse (its preapical width is 5.5—6.5 times less than the maximal pygophore width).

The remaining West-Palearctic *Rh. iracundus*, East-Mediterranean *Rh. punctiventris* (Herrich-Schaeffer, 1846), *Rh. hierapolitanus* Dispons, 1964 and *Rh. ocreatus* Dispons, 1964, West-Mediterranean *Rh. rubricus* (Germar, 1814), *Rh. cuspidatus* Ribaut, 1921 and *Rh. erythropus* (Linnaeus, 1767), Middle-Asian *Rh. monticola* (Oshanin, 1871) and *Rh parthiae* Miller, 1950 are quite similar either to the "red" or to the "black" forms of *Rh. persicus* in general shape and coloration. However, even in the most melanistic specimens of these species the underside of the head ("throat") and the anterior coxae are red, reddish, orange, yellow or whitish; in many cases also other coxae, trochanters, stridulating furrow (and, often, more or less considerable parts of pectus and abdomen) are of similar vivid coloration. Furthermore, *Rh. erythropus* is characterized by red, orange, yellow or whitish longitudinal stripe in the mid of scutellum (in exceptional cases such stripe occurs in *Rh. iracundus* too) and *Rh. punctiventris* — by whitish posterior border of pronotum. The theca structure (unknown for *Rh. hierapolitanus*, *Rh. ocreatus* and *Rh parthiae*) is different from that of *Rh. persicus*. In particular, the central incision of the anterior border of theca is either small and narrow, as in *Rh. iracundus* (fig. 2, *5*) or wide and shallow, as in *Rh. erythropus* (fig. 2, *18*); struts usually with closely approached (fig. 2, *5, 18*) or contacting medial excrescences in the preapical incurvation region; there are also other particularities of the theca structure, especially in *Rh. punctiventris* and *Rh. cuspidatus* whose parameres and apophyse are very different from those of *Rh. persicus* (e. g., Rieger, 1972; Putshkov, 1987, 1994). The hind angles excrescences of posterior pronotal lobe are always well-developped though this character in *Rh. iracundus* and *Rh. persicus* is somewhat overlapping due to considerable variability in both species (fig. 1, *1—4*). The differences in head configuration (fig. 1, *1, 3*) are not always constant too. All these species (except for *Rh. erythropus*, whose length is 11.0—15.0 mm) are bigger than *Rh. persicus*: in *Rh. iracundus*, *Rh. hierapolitanus*, *Rh. ocreatus, Rh. rubricus* and *Rh. cuspidatus* length with wings is usually 13.5—16.5 (♂) and 15.5—18.0 (♀) mm. In *Rh. punctiventris* it is 15.0—18.0 (♂) and 17.0—20.0 (♀), in *Rh. monticola* — 16.8—19.5 (♂) and 17.5—22.0 (♀) mm.

At last in no one of the above-mentioned species, the hind tibia of female is spindle-like incrassated; its maximal thickness is only 1.0—1.3 times greater than smallest thickness of knee bend and 1.2—1.5 times greater than the smallest subapical thickness ("ankle") (fig. 2, *13—14*); the wax-like dull substance on their hind tibia is absent. Among Palearctic *Rhynocoris* such features of tibias seem to be proper only to females of *Rh. persicus*. In the world fauna it shares this tray with *Rh.* (*Charontus*) *longifrons* Stål, 1874 from India. The proposition to place *Rh. persicus* (as *Rh. christophi*) within the subgenus *Charontus* Stål, 1874 (Horvath, 1911: 591; Kiritshenko, 1918: 120) could be neither accepted nor rejected at the present state of our knowledge.

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